Electronic TUBES

# 6SC7—12SC7

## TWIN TRIODE

### FOR AF VOLTAGE AMPLIFIER APPLICATIONS

## DESCRIPTION AND RATING

The 6SC7 is a high-mu twin triode designed primarily for use as an AF voltage amplifier. Featuring a special shielding arrangement to reduce hum, the tube is well suited for low-level audio amplifier service.

Except for heater ratings the 12SC7 is identical to the 6SC7.

### GENERAL

**ELECTRICAL**

| | 6SC7 | 12SC7 | |
|---|---|---|---|
| Cathode—Coated Unipotential | | | |
| Heater Voltage, AC or DC | 6.3 | 12.6 | Volts |
| Heater Current | 0.3 | 0.15 | Amperes |
| Direct Interelectrode Capacitances, approximate* | | | |
| Grid to plate | 2.0 | | μμf |
| Input | 2.0 | | μμf |
| Output | 3.0 | | μμf |

**MECHANICAL**

Mounting Position—Any
Envelope—MT-8, Metal Shell
Base—B8-21, Small Wafer Octal 8-Pin
* With pin 1 connected to pin 6.

### MAXIMUM RATINGS

**DESIGN-CENTER VALUES, EACH SECTION**

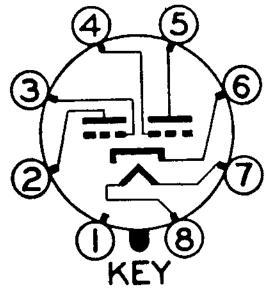
| | | |
|---|---|---|
| Plate Voltage | 250 | Volts |
| Heater-Cathode Voltage | | |
| Heater Positive with Respect to Cathode | 90 | Volts |
| Heater Negative with Respect to Cathode | 90 | Volts |

### CHARACTERISTICS AND TYPICAL OPERATION

**CLASS $A_1$ AMPLIFIER, EACH SECTION**

| | | |
|---|---|---|
| Plate Voltage | 250 | Volts |
| Grid Voltage | −2.0 | Volts |
| Amplification Factor | 70 | |
| Plate Resistance, approximate | 53000 | Ohms |
| Transconductance | 1325 | Micromhos |
| Plate Current | 2.0 | Milliamperes |

**BASING DIAGRAM**

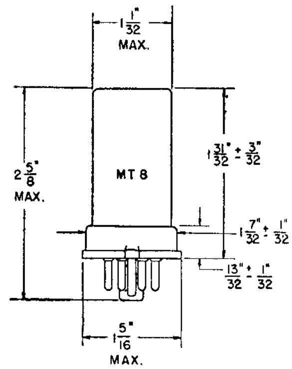



RETMA 8S

**TERMINAL CONNECTIONS**

Pin 1—Shell
Pin 2—Plate Number 2
Pin 3—Grid Number 2
Pin 4—Grid Number 1
Pin 5—Plate Number 1
Pin 6—Cathode
Pin 7—Heater
Pin 8—Heater

**PHYSICAL DIMENSIONS**

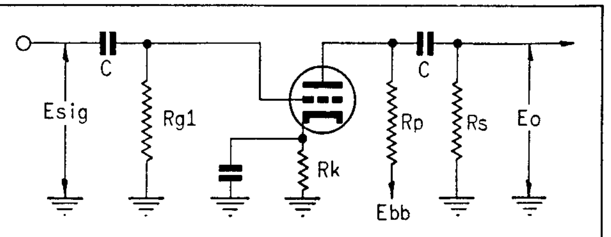



RETMA 8-1

# CLASS A RESISTANCE-COUPLED AMPLIFIER

EACH SECTION

| Rp Meg | Rg1 Meg | Rs Meg | Ebb = 90 Volts | | | Ebb = 180 Volts | | | Ebb = 300 Volts | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rk | Gain | Eo | Rk | Gain | Eo | Rk | Gain | Eo |
| 0.10 | * | 0.10 | 1800 | 19 | 6.0 | 910 | 25 | 18 | 680 | 29 | 32 |
| 0.10 | * | 0.24 | 2000 | 25 | 8.0 | 1000 | 29 | 24 | 750 | 34 | 42 |
| 0.24 | * | 0.24 | 3300 | 28 | 9.0 | 1800 | 35 | 23 | 1300 | 39 | 40 |
| 0.24 | * | 0.51 | 3600 | 33 | 10 | 2000 | 40 | 30 | 1500 | 42 | 51 |
| 0.51 | * | 0.51 | 5600 | 35 | 8.5 | 3000 | 43 | 27 | 2200 | 46 | 46 |
| 0.51 | * | 1.0 | 6200 | 38 | 12 | 3300 | 46 | 35 | 2400 | 49 | 55 |
| 0.24 | 10 | 0.24 | 0 | 29 | 7.5 | 0 | 36 | 23 | 0 | 39 | 44 |
| 0.24 | 10 | 0.51 | 0 | 33 | 10 | 0 | 41 | 30 | 0 | 43 | 55 |
| 0.51 | 10 | 0.51 | 0 | 36 | 9.5 | 0 | 44 | 26 | 0 | 46 | 51 |
| 0.51 | 10 | 1.0 | 0 | 40 | 12 | 0 | 48 | 36 | 0 | 50 | 62 |

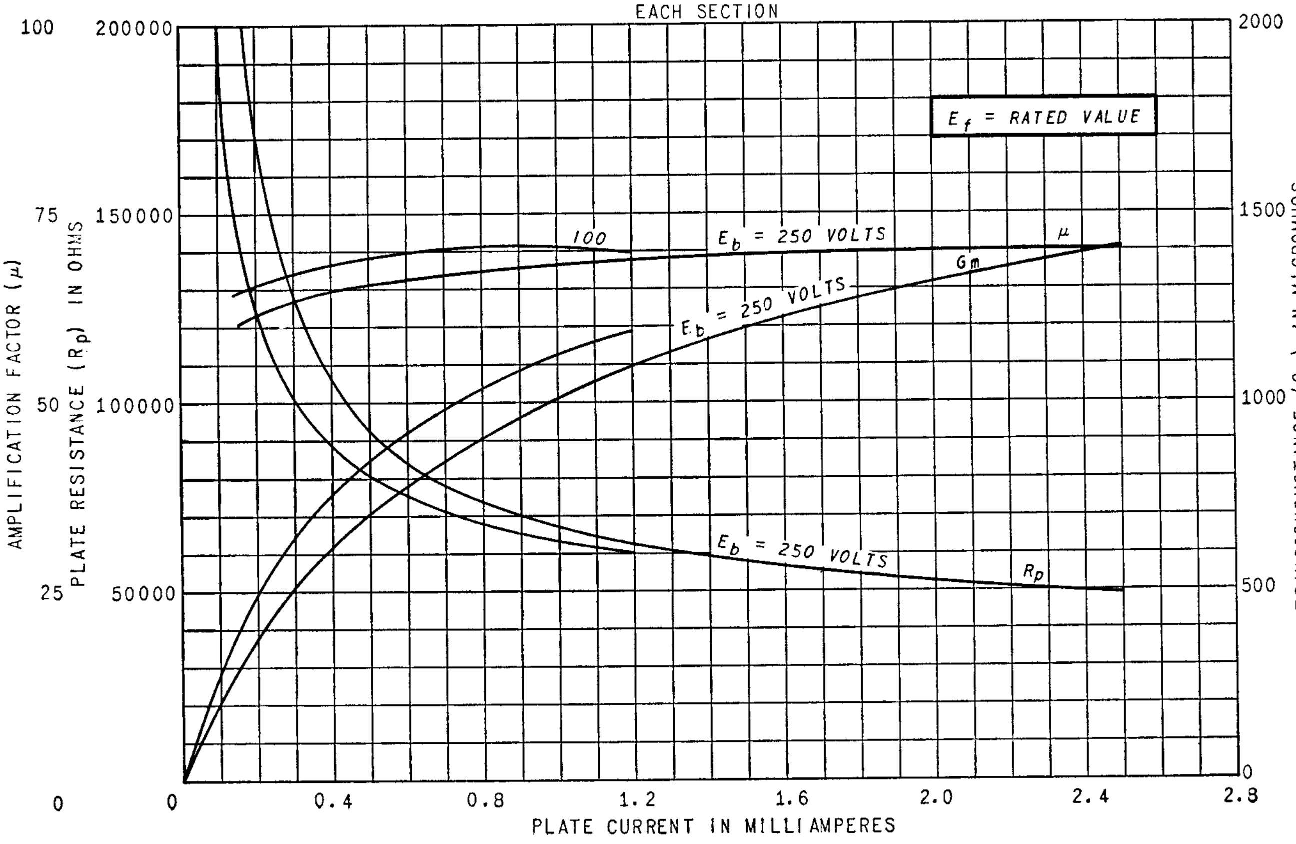



Note: Coupling capacitors (C) should be selected to give desired frequency response. Rk should be adequately by-passed.

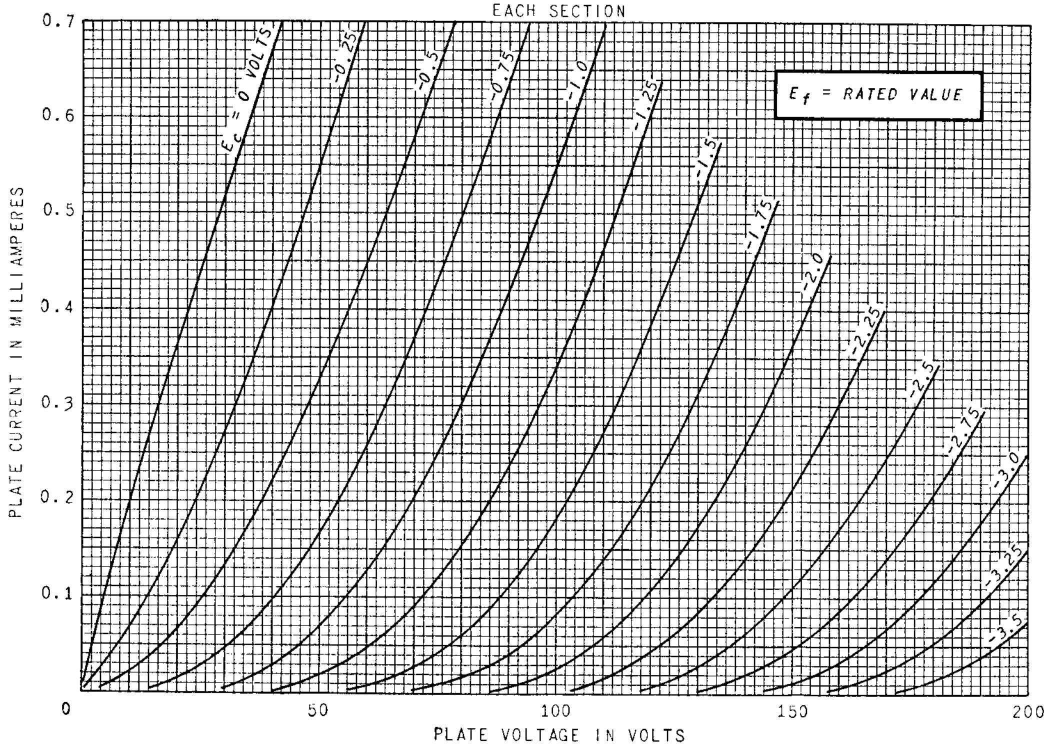
Notes: 1. Eo is maximum rms voltage output for five percent (5%) total harmonic distortion. 2. Gain measured at 2.0 volts rms output. 3. For zero-bias data generator impedance is negligible. *Value of Rg1 is non-critical.

# AVERAGE CHARACTERISTICS

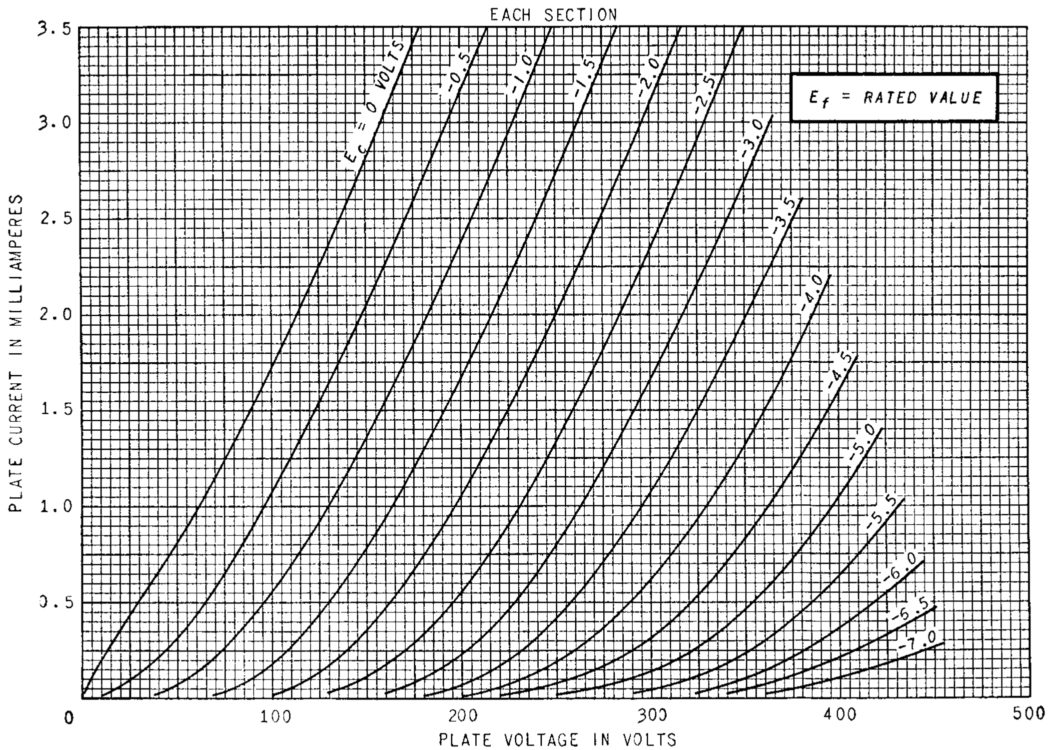
EACH SECTION



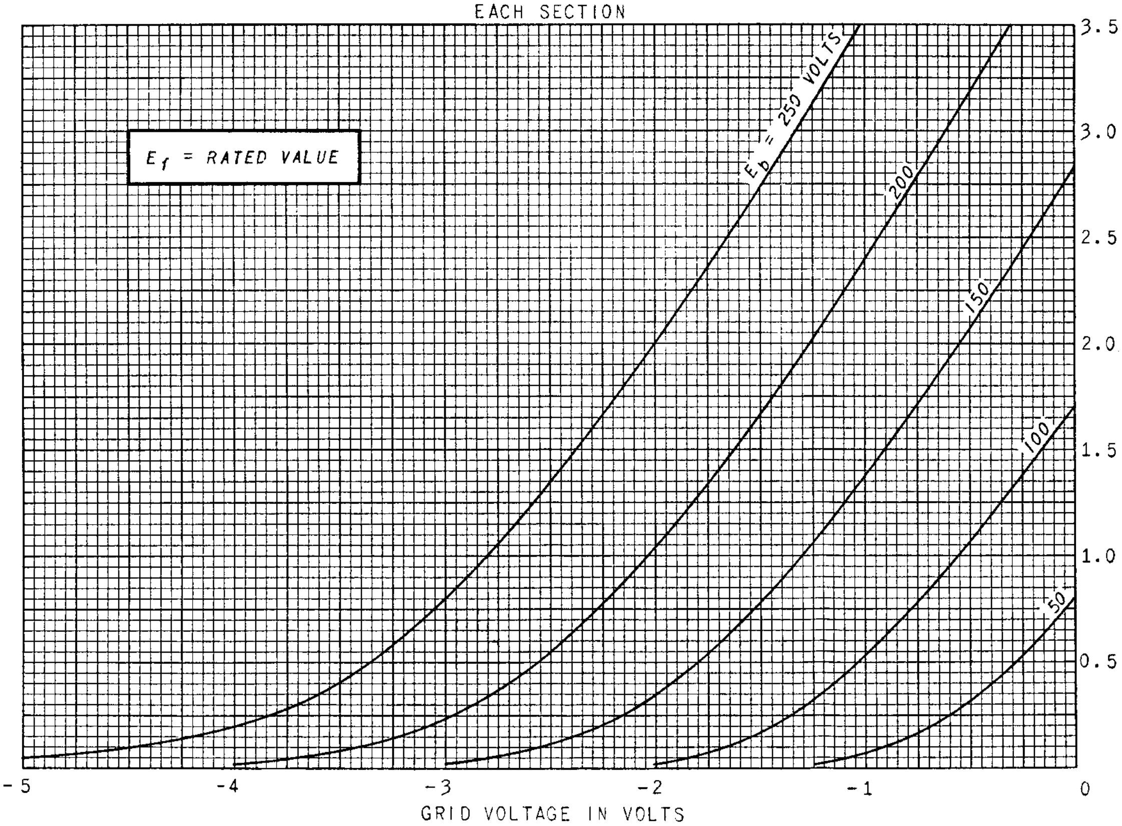
## AVERAGE PLATE CHARACTERISTICS




## AVERAGE PLATE CHARACTERISTICS



## AVERAGE TRANSFER CHARACTERISTICS




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